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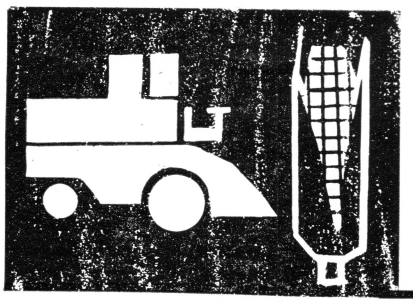

1966 Costs for Field Work

by Dale O. Hull, Donald L. Martin and Maurice C. Caldwell

FARM MANAGERS and farm operators who review the 1966 Farm Work Cost Guide will find charges for many farm operations are up slightly. Except for a few harvesting operations, Iowa State University costs had held nearly constant between 1962 and 1964.

But this year, the hourly charges for most tractors and implements have been adjusted upward ranging from 5 to 15 percent to take care of gradually increasing maintenance and repair costs. Implements with the larger increases are those which require replaceable wearing parts such as shares, shovels and knives and operate at higher speeds.

A re-evaluation of fuel consumption rates based on the performance of modern tractors suggests a slight increase in charges for fuel for several tractors is realistic. These charges, however, represent only a 3 to 5 percent change in hourly tractor costs. The 1966 Iowa Farm Work Cost Guide features a new column for total tractor costs.

The field work costs are compiled from the cost accounting records maintained by the Farm Services Department of Iowa State University.

Labor costs are not included in the rates listed. The going wage rate for the locality concerned should, in every case, be added to the rate listed if you are establishing machine rental or custom rates.

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Include All Costs . . .

The cost of owning and operating a farm implement can be divided into two categories: fixed costs and operating costs. You should also include a charge for risk to cover the hazards of ownership.

Fixed costs are a direct consequence of machine ownership and are not generally affected by the amount of use. They include:

1. *Depreciation:* Based on purchase price, salvage or trade-in value, and the useful or service life or total years use of the machine. Using the straightline method, which charges the same amount each year over the life of the machine, the charge can be computed by subtracting trade-in value from purchase price and dividing by expected years of life of the machine. The Farmers' Tax Guide, IRS publication No. 225 is an excellent source of depreciation information.

2. *Interest:* This is a charge for use of money invested in the machine. Use your local bank rate. To figure annual interest charge, add purchase price and trade-in value, and divide by 2. Multiply the result by interest rate.

3. *Shelter, Insurance, Taxes:* These annual costs can be estimated together as 2¼% of the purchase price.

Operating costs are directly proportional to the amount of time the machine is used annually. They include:

1. *Labor, fuel* (gasoline, diesel fuel): These costs vary and should be computed using the prevailing local rates and costs.

2. *Crankcase oil* and *lubricating grease* which can be estimated as 1½% of the purchase price for self-propelled machines and ½% for others.

3. *Repairs,* which can be roughly estimated as 3% of the purchase price.

4. *Tractor use,* which allocates a portion of the fixed costs of the tractor to each operation for which the tractor is used. A schedule of rates for typical wheel tractors is given at the top of the Farm Work Cost Guide. The fuel costs listed at the top of the table are based on 17c per gallon for gasoline and 16.5c per gallon for No. 1 diesel fuel.

Risk of ownership: Any custom operator who performs a service should consider adding a charge to cover the hazards of ownership and other costs of doing business. This charge can vary from 10% to 20% of the total charge, depending upon locality.

Rule of Thumb . . .

The total yearly cost of owning and operating a machine may be estimated rapidly as a fixed percentage of the purchase price. This percentage should be estimated with respect to the amount of use and the number of wearing parts. For example, the percentage charge for a combine is greater than for a spike tooth harrow. For rough estimation, the following percentages may be used:

1. 15% of purchase price for machines used infrequently.

2. 20% of purchase price for machines used an average amount.

3. 25% of purchase price for machines with high use.

IOWA FARM WORK COST GUIDE – 1966

(Labor Charges NOT Included)

Kind of fuel and power	Hourly Tractor Cost[a]		Hourly Fuel Cost[b]		Total Hourly
Gasoline tractor, 2-plow	T2 =	$1.00	F2 =	$0.40	$1.40
Gasoline tractor, 3-plow	T3 =	1.15	F3 =	0.55	1.70
Gasoline tractor, 4-plow	T4 =	1.35	F4 =	0.65	2.00
Gasoline tractor, 5-plow	T5 =	1.50	F5 =	0.80	2.30
Gasoline tractor, 6-plow	T6 =	1.65	F6 =	0.90	2.55
Diesel tractor, 4-plow	TD4 =	1.50	FD4 =	0.55	2.05
Diesel tractor, 5-plow	TD5 =	1.60	FD5 =	0.60	2.20
Diesel tractor, 6-plow	TD6 =	1.75	FD6 =	0.70	2.45

Operation	Cost per hour: Implement[c]		Power[d]		Fuel[d]		Total[e]	Cost per acre including power & fuel
Tillage:								
Plow, 3-bottom	$0.90	+	T3	+	F3	=	$2.60	$1.95
Plow, 4-bottom	1.60	+	T4	+	F4	=	3.60	1.95
Plow, 5-bottom	1.95	+	T5	+	F5	=	4.25	1.70
Plow, 6-bottom	2.10	+	T6	+	F6	=	4.65	1.65
Lister, 4-bottom	1.95	+	T5	+	F5	=	4.25	1.80
Disk harrow, 15-foot, single	0.55	+	T3	+	F3	=	2.25	0.45
Disk harrow, 10-foot, tandem	0.85	+	T3	+	F3	=	2.55	0.85
Disk harrow, 14-foot, tandem, wheel type	1.40	+	T4	+	F4	=	3.40	0.80
Disk harrow, 18-foot, tandem, wheel type	2.10	+	T5	+	F5	=	4.40	0.70
Spike-tooth harrow, 20-foot	0.70	+	T2	+	F2	=	2.10	0.25
Spike-tooth harrow, 30-foot, wheel drawbar	1.50	+	T4	+	F4	=	3.50	0.30
Spring-tooth harrow, 16-foot	1.00	+	T5	+	F5	=	3.30	0.65
Packer, double-gang corrugated roller, 10-foot	0.50	+	T3	+	F3	=	2.20	0.55
Rotary tiller, 7-foot	1.50	+	T5	+	F5	=	3.80	——
Planting:								
Plant corn, drill, 4-row	1.10	+	T3	+	F3	=	2.80	0.65
Plant corn, drill, 4-row, fertilizer and pesticide attachments used	1.75	+	T3	+	F3	=	3.45	1.00
Drill grain, 11-foot with fertilizer attachment and grass seeder	1.65	+	T3	+	F3	=	3.35	0.95
Endgate seeder (charge for wagon omitted)	0.30	+	T2	+	F2	=	1.70	0.25
Packer-seeder, 10-foot	1.65	+	T2	+	F2	=	3.05	0.95
Cultivation:								
Rotary hoe, 2-row, 3-point hitch	0.70	+	T2	+	F2	=	2.10	0.55
Rotary hoe, 4-row	1.45	+	T3	+	F3	=	3.15	0.35
Cultivate, 4-row	1.80	+	T3	+	F3	=	3.50	0.70
Harvesting:								
Combine (small grain), direct or pickup, 10-foot	7.50	+	—	+	F4	=	8.15	4.00
Combine (corn), 2-row	10.00	+	—	+	F3	=	10.55	7.00
Corn picker, 2-row	4.30	+	T4	+	F4	=	6.30	3.50
Corn picker-sheller, 2-row	5.65	+	T4	+	F4	=	7.65	4.60
Forage harvester, corn and sorghum	6.75	+	T4	+	F4	=	8.75	6.00
Forage harvester, grass and legume	5.70	+	T4	+	F4	=	7.70	5.75
Haying:								
Mowing or pasture clipping	1.20	+	T2	+	F2	=	2.60	0.95
Rake, side-delivery	1.40	+	T2	+	F2	=	2.80	0.80
Conditioner, roller	1.50	+	T2	+	F2	=	2.90	0.85
Mow, condition, windrow; flail type unit	2.50	+	T4	+	F4	=	4.50	2.75
Mow, condition, and windrow, 10-foot SP	7.00	+	—	+	F3	=	7.55	2.10
Baler, PTO, field pickup	10c/ bale (add 1c/bale for bale ejector)							
Fertilizing:								
Broadcast spreader, 12-foot drill	0.90	+	T2	+	F2	=	2.30	0.65
Manure loader, power, heavy duty type	1.10	+	T3	+	F3	=	2.80	——
Manure spreader, PTO, 140 bu	1.35	+	T3	+	F3	=	3.05	——
Miscellaneous:								
Grinder-mixer	2.35	+	T3	+	F3	=	4.05	——
Spraying, 20-foot attached or trailing	1.10	+	T2	+	F2	=	2.50	0.40
Mowing weeds or chopping cornstalks, 3-point hitch, rotary mower	1.00	+	T2	+	F2	=	2.40	1.25
Bore post holes	0.45	+	T2	+	F2	=	1.85	——
Blower and tractor	1.80	+	T3	+	F3	=	3.50	——
Self-unloading wagon	1.65	+	T2	+	F2	=	3.05	——
Hauling silage (up to 3 miles)	$1.00 per ton							
Shell corn (stationary)	2½c per bushel							
Dry shelled corn or small grain	5c per bushel minimum charge; 1c per bushel for each % moisture removed							

[a] **Cost of tractor only** per hour (tractor operating 600 hours per year).

[b] **Cost of fuel only** per hour; gasoline at 17c per gal. net cost; No. 1 diesel fuel at 16.5c per gal.

[c] **Cost of implement only; add** costs of tractor and fuel for complete cost.

[d] **Use costs from top part of guide according to type of tractor and fuel actually used.** If a diesel, 4-plow tractor, for example, is used, take costs indicated for TD4 and FD4 rather than T4 and F4.

[e] **To obtain total cost per hour for** a particular operation, **add** cost for implement to cost for tractor and fuel according to kind of power and fuel actually used if different from combination shown. These costs are shown in the top portion of the table.

TABLE 1. Cost Computation Table

Depreciation = $\frac{\text{New cost} - \text{trade-in}}{\text{useful life}} = \frac{\$800 - \$50}{8 \text{ yrs.}} = \$93.75$ per year

Interest on investment = $\frac{\text{new cost} + \text{trade-in}}{2} \times 7\% = \frac{\$800 + \$50}{2} \times 0.07 = \$29.75$

Shelter, insurance = new cost $\times$ 2¼% = \$800 $\times$ 0.0225 = \$18.00

Repairs = new cost $\times$ 3% or \$800 $\times$ 0.03 = \$24.00

Limitation of Rates . . .

Remember . . . The rates listed are based on *normal working conditions* and *don't include labor*. They include only actual cost with no margin for profit or risk and *are not intended for commercial operations.*

Figuring Your Field Operating Costs . . .

Here is a typical example as to how to figure tractor or machine costs by methods described previously.

Your local dealer will rent you a hay crusher for \$1.50 per acre with you furnishing your own tractor and operator. Or he will sell you the hay crusher for \$800, tax paid. You have 45 acres of good alfalfa and take off three crops annually. Should you rent or buy? It would cost you \$202.50 per season (\$1.50/acre x 45 x 3 crops) to rent from the dealer.

By Computation Method . .

New cost of the crusher is \$800, tax paid. You figure that the crusher will last 8 years (the useful life of the machine). You estimate that you can get \$50 trade-in credit after 8 years. The local interest rate on loans is 7 percent. By methods described above you can figure *fixed* costs and the *operating cost* (repairs). See Cost Computation Table for figures.

Total costs per year become:	
Depreciation	\$ 93.75
Interest on investment	29.75
Shelter, etc.	18.00
Repairs	24.00
Total (for season use)	\$165.50

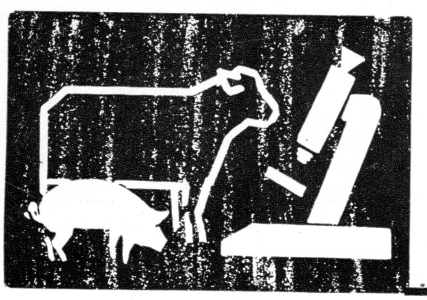
Now, divide your annual cost of ownership, \$165.50, by 135 acres (3 cuttings x 45 acres) to find your cost of use to be about \$1.22 per acre. By owning, you'd save: \$1.50 (dealer's rental) – \$1.22 (your ownership cost) = 28c per acre.

By Rule of Thumb Method (Percentage of New Cost)

Here you need to make logical decisions as to whether 135 acres of use per year represents *infrequent* use, *average* use, or *high* use of the hay crusher. In our example we judge usage to be average. Further, we believe we are *ordinary* operators—with not too much spent for repairs. We think that 20% of new cost per year would present our cost of use position:

New cost x 20% or \$800 x 0.20 = \$160.00 cost of ownership. This makes the cost of ownership (\$160 ÷ 135 acres) become \$1.18 per acre. This is still less than \$1.50 per acre (rental rate) by 32c per acre (\$1.50 – \$1.18).

The difference in each case between *rental* and *ownership costs* represents a charge for *risk* to which any custom operator is entitled.



Livestock Disease Control Outlook—1966

Control and eradication programs show excellent progress in 1965. More progress in sight for 1966 as Iowa becomes modified-certified brucellosis free, meat inspection is enacted, and other programs continue.

by Dr. John B. Herrick

THIS COUNTRY'S philosophy on livestock diseases has been one of control and eradication. Because of this philosophy production cripplers such as tick fever, foot and mouth disease and glanders have been eradicated. Excellent progress has been made in eradicating tuberculosis, brucellosis, and hog cholera. Eradication programs continue to build the groundwork for successful livestock production in Iowa and the United States.

Other control programs are forthcoming. Anaplasmosis, viral diseases in cattle and diseases associated with the production of turkeys and chickens hold top priority positions.

One of the most important aspects of disease programs is the detailed searching for the last reservoirs of infection—a study called epidemiology. This phrase of eradication is all important but is costly and time consuming. Brucellosis, tuberculosis and hog cholera are in this phase of eradication.

All segments of the livestock in-

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